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In the Office Action mailed July 17, 2002, claims 1-20 were finally rejected under 35 U.S.C. §103(a) as being unpatentable over Hartley et al., U.S. Patent No. 4,853,737 ("Hartley"), and incorporated by reference, Lentz, U.S. Patent No. 4,257,699 ("Lentz"), in view of Schlueter, Jr. et al., U.S. Patent No. 5,995,796 ("Schlueter"). Also, claims 1-22 were finally rejected under 35 U.S.C. §103(a) as being unpatentable over Hartley in view of Schlueter and Blong et al., U.S. Patent No. 5,527,858 ("Blong").

In the September 19, 2002 Advisory Action, it was stated that "...the features upon which applicant relies (i.e., excellent release characteristics due to very low surface energy) are not recited in the rejected claim(s)." The applicants acknowledge that " excellent release characteristics" and "low surface energy" are not recited in the claims but respectfully disagree with the assertion that they rely on these features. In their response filed September 5, 2002, the applicants explained that fluorocarbon elastomers and fluorocarbon thermoplastics are well recognized as distinctly different materials, with separate entries in different volumes of the *Encyclopedia of Polymer Science and Engineering*. The applicants further noted that these materials are characterized by substantially different physical properties, for example, surface energies (high for fluoroelastomers, low for fluoroplastics), glass transition temperatures (applicable to fluoroelastomers), and melting ranges (applicable to fluoroplastics).

Also in the Advisory Action, the Examiner stated that the fluoroelastomers of Hartley are polymers comprising pendant polydiorganosiloxane covalently bonded to a thermoplastic VF-HFP-PTFE terpolymer backbone and further asserted that the Hartley fluoroelastomers are, in fact, fluorocarbon thermoplastic random copolymers, as claimed in the instant application. In support of this position, the Examiner cited the disclosures of Vaia et al., U.S. Patent No. 6,225,374 ("Vaia") and Shifman et al., U.S. Patent No. 6,203,873 ("Shifman").

The applicants acknowledge that the fluoroelastomers of Hartley contain pendant polydiorganosiloxane covalently bonded to a polymeric backbone. However they respectfully disagree with the Examiner's assertion that this backbone is thermoplastic and that the disclosed fluoropolymers are therefore fluorocarbon thermoplastic random copolymers. Hartley teaches a fluoroelastomer base polymer (column 2, line 29, to column 3, line 4) to which is covalently bonded a small amount of polydiorganosiloxane segments (column 4, line 40, to column 5, line 66), thereby

DRAFT

providing an "internal lubricant" that results in a relatively low surface energy coating (column 4, lines 40-52). Examples 1 and 2 of the reference both disclose compositions containing 100 parts of Viton A, a commercial fluoroelastomer comprising two monomers, HFP and VF, and 5 parts of an amino-terminated polydimethylsiloxane oligomer. Hartley repeatedly and consistently refers to the disclosed compositions as fluoroelastomers and further frequently refers to the fluoroelastomer "backbone" (for example, column 3, lines 24-29; column 4, line 60; column 8, lines 25-26).

With regard to the references newly cited by the Examiner in support of her position, Vaia, which has to do with a solvent-free method of forming a silicate-polymer composite, is cited simply for its mention of polydimethylsiloxanes as an example of thermoplastic polymers. The second cited reference, Schifman, is more relevant to the present case. Schifman discloses a blend of a first fluorinterpolymer having elastomeric characteristics and a second fluorointerpolymer having thermoplastic characteristics (column 1,lines 46-48). Schifman further discloses that the first fluorinterpolymer having elastomeric characteristics and the second fluorointerpolymer having thermoplastic characteristics each comprises a copolymer, terpolymer, or mixture thereof formed by the copolymerization of two or more monomers selected from the group consisting of HFP, VF, and TFE (column 1, line 57 to column 2, line 5). Thus, both the elastomeric and the thermoplastic fluorointerpolymers taught by Schifman are formed from the same group of three monomers, which also constitute the fluorocarbon thermoplastic random copolymer constituting the coating composition of the present invention.

The applicants therefore maintain their position that their fuser roll release layer is formed from a fluorocarbon thermoplastic random copolymer, in contrast to Hartley, Lentz, and Schlueter, all of which teach fuser roll release layers formed from cured fluoroelastomers.

The Examiner has acknowledged that Hartley fails to teach the inclusion in the composition of antimony doped tin oxide, relying on Schlueter to supply this missing disclosure. As taught at page 11, line 28 to page 12, line 3 of the instant specification, the inclusion of antimony doped tin oxide particles is crucial for drastically lowering the curing temperature of the coated thermoplastic polymer, from 220 to 280°C to as low as room temperature (25°C). Hartley teaches curing temperatures of at least 230°C, and Lentz includes an example with a curing temperature of 232°C. There is

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no teaching in any of the cited references of a metal oxide or combination of oxides being used to enable low temperature curing of a fluoroelastomer layer.

As taught in the instant specification, high temperature curing of a fluoroelastomer release layer can cause damage to a fuser roll, for example, depolymerization of silicone rubber in the cushion layer. The method of the present invention advantageously provides for the curing of a layer formed from a fluorocarbon thermoplastic copolymer composition at a substantially lower temperature of 25°C to 120°C, preferably 25°C to 50°C, more preferably 25°C. This benefit is enabled by the inclusion of antimony-doped tin oxide particles in the coating composition.

As noted in the applicants' previous response, the compositions disclosed in Blong, in contrast to those of Hartley, Lentz and Schlueter, do include thermoplastic fluoropolymers. However Blong contains no teaching whatsoever of a curing temperature, reciting instead an extrusion temperature of 230°C.

In light of the foregoing discussion, withdrawal of the §103(a) final rejection of claims 1-22 and allowance of this case is again respectfully requested.

Respectfully submitted,

Date

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